

A new species of the snail-killing fly genus *Sciomyza* (Diptera: Sciomyzidae), and a list of Sciomyzidae collected at Anninskoe and Anisimovo Lakes, Pskov Province

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Przhiboro, A.A. 2001. A new species of the snail-killing fly genus *Sciomyza* (Diptera: Sciomyzidae), and a list of Sciomyzidae collected at Anninskoe and Anisimovo Lakes, Pskov Province. *Zoosystematica Rossica*: **10**(1): 183-188.

Sciomyza sebezhi sp. n. is described from a lake-shore habitat in Pskov Province. A list of 22 Sciomyzidae species collected or reared from different habitats in the shallow water zone of two small lakes is given.

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The data on the fauna and habitat distribution of snail-killing flies (Sciomyzidae) of Pskov Province are scanty in comparison with the adjacent regions – Leningrad Province and Baltic Republics studied mainly by Stackelberg and Elberg (see: Rozkošný, 1984).

The work is based on field collecting and laboratory rearing of Diptera at two small lakes situated in the south of Pskov Province (Sebezhi District). Field material was collected in September 1997, from May to July 1998, and in July 1999. Benthic samples were taken with net and hydrobiological samplers in the shallow littoral zone and in the zone of water line on previously chosen sites. Imagines were collected with aspirator and by net-sweeping in the above-water and above-ground layers on some of the mentioned sites. The zone of water line is considered in the borders: from 10 cm above the water level up to 5 cm below this level. In laboratory, the imagines of Diptera were reared from larvae and pupae obtained from the samples in the course of the processing, as well as from the substrata collected in the zone of water line and kept in laboratory conditions.

The list includes species both collected as imago and reared from puparia. Identifications of all male specimens are based on genitalia examination. In addition, finds of some mature larvae and puparia (not reared) belonging to the species not obtained at adult stage are listed. All specimens but one were collected in the zone of water line. All scales in the figures equal 0.1 mm.

Brief description of study lakes and sites

Lake Anninskoe (56°12'N, 28°40'E) is a low eutrophic reservoir with an area around 1.5 km². Emergent vegetation covers the shallow littoral zone along all the shore line, the stands are from sparse to dense; *Phragmites australis*, *Scirpus lacustris* or *Carex rostrata* predominating on the most of sites. Changes of the water level during the season can reach 25 cm.

The zone of water line of the sites from which Sciomyzidae were collected is described below: **Site 1**. The zone is narrow (30-40 cm in width), almost devoid of semiaquatic vegetation, shaded by trees and protected with reed belt only from strong wave action. Bottom substratum is represented mainly by detritus and plant remains (leaves of trees, remains of reed and branches) and constituted 2-5 cm layer over the sand. **Site 2**. The zone is a shore marsh (4-10 m wide), abounding in mounds. It is completely protected from wave action and covered densely with semiaquatic vegetation, *Thelypteris palustris* and *Acorus calamus* predominate; total cover 70-100%. Bottom substratum is represented only by detritus and plant remains (herbaceous vegetation, leaves of trees, wood of willow) in places turning into the turf. **Site 6**. The zone is a very flat shore marsh (nearly 50 m wide), completely protected from wave action and covered densely with semiaquatic vegetation. *Phragmites australis* predominate; total cover 60-90%. Sev-

eral species of semiaquatic mosses are abundant in the bottom layer. Bottom substratum is represented by detritus and plant remains turning into the friable turf. **Site 10.** The zone is relatively narrow (nearly 1 m wide), completely protected from wave action and shaded by trees. Total cover of semiaquatic vegetation is less than 40%, *Comarum palustre* and reed predominate. The silted turf is completely covered with 5-10 cm layer of plant remains (mainly leaves of trees, together with remains of reed and *Scirpus*).

Lake Anisimovo (4 km NW of lake Anninskoe) is a highly eutrophic shallow lake with an area nearly 0.5 km². Its surface is completely covered with emergent and floating-leaf vegetation. Dense stands of hydrophytes occupy all the shallow water zone; *Phragmites australis*, *Scirpus lacustris*, *Glyceria maxima*, *Typha latifolia*, *Stratiotes aloides* or *Carex rostrata* predominate. Changes of the water level are as in lake Anninskoe.

The zone of water line of the sites from which Sciomyzidae were collected is described below: **Site 1.** The zone is a shore marsh (3-10 m wide), abounding in mounds and covered densely with semiaquatic vegetation. *Carex* spp., *Eleocharis palustris*, *Glyceria maxima* and *Thelypteris palustris* predominate; total cover 50-90%. The silted turf is covered with remains of semiaquatic plants (the layer of 1-4 cm). **Site 4.** The zone is narrow (50-100 cm wide), with mounds, covered with vegetation. *Thelypteris palustris*, *Typha latifolia* and *Equisetum fluviatile* predominate; total cover 30-70%. Bottom substratum is represented by detritus and remains of semiaquatic plants turning into the friable turf.

Taxonomic account

Subfamily SCIOMYZINAE Schiner, 1862

Tribe SCIOMYZINI sensu Steyskal, 1965

Sciomyza sebezica sp. n.

(Figs 1-6)

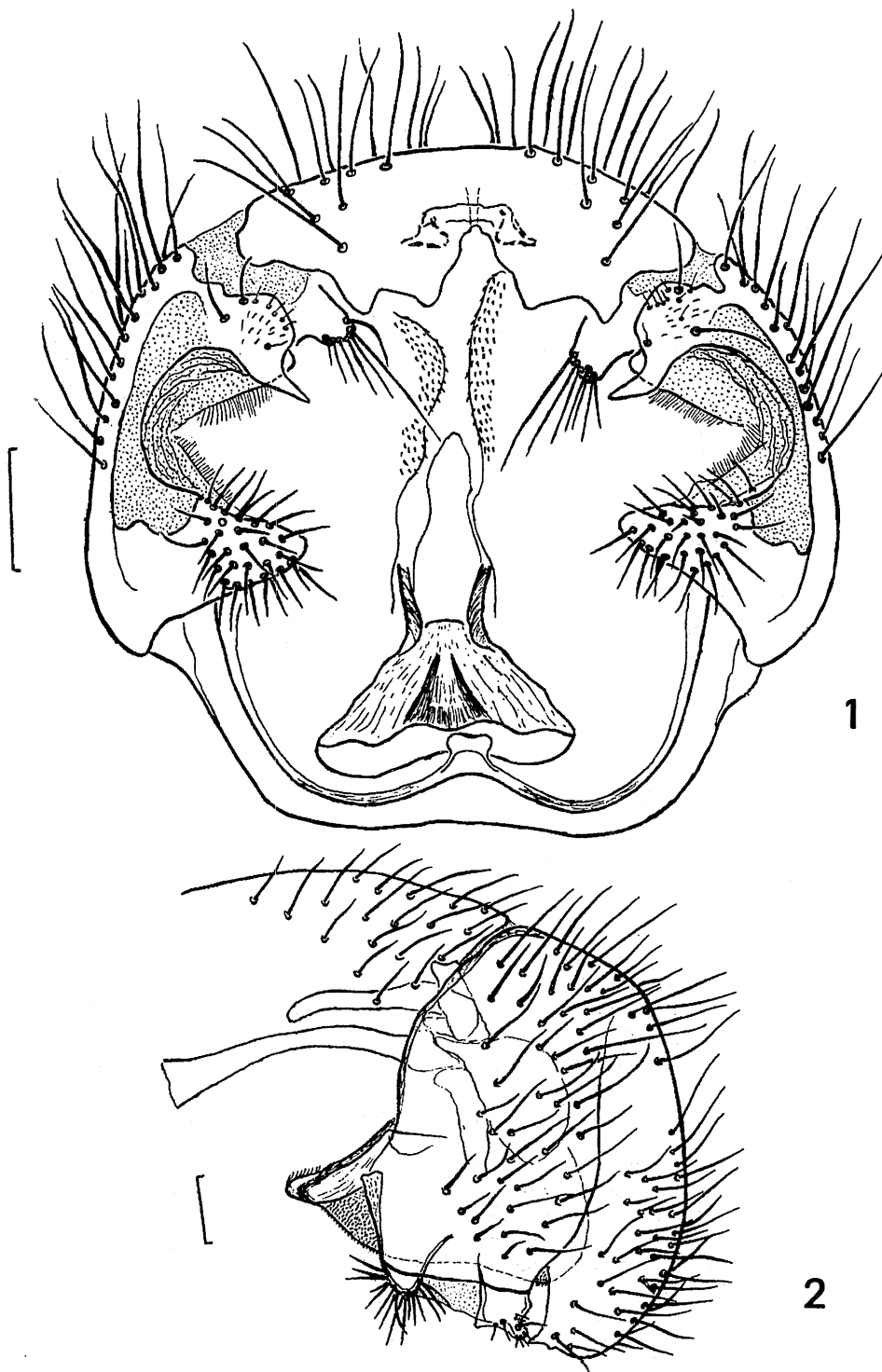
Holotype. ♂, **Russia**, *Pskov Prov.*, Sebezhe Distr., shore of Lake Anninskoe near village Anninskoe, imago reared 4.III.1998 from shore substratum collected 30.IX.1997 in the zone of water line on site 1 (A. Przhiboro), is deposited in the Zoological Institute, St. Petersburg. The holotype is preserved in 70% alcohol. Andrium is separated from the specimen. Perianthrium with gonostyli and cerci is preserved in a plastic tube in the same larger tube as the specimen. The inner copulatory organ is taken out and mounted on a slide in Canadian balsam (ejaculatory apodeme is placed on the same slide separately), as well as the right wing of the holotype.

Description. Male. Ground-colour yellow to tawny. Head brownish yellow; antennae, anterior third of frons, face except the midfacial line, the most of cheeks and parafacialia tawny, slightly darkened. 3rd antennal segment completely black, rounded apically, about 1.5 times as long as broad. Arista black, long-plumose (longest hairs slightly shorter than width of 3rd antennal segment). Frons shining, anterior 1/4 whitish pruinose. Ocellar triangle and fronto-orbital plates shining, the former not reaching the middle of frons. Face concave, whitish pruinose. Cheek 0.3 times as broad as eye-height and 1.5 times as broad as base of 3rd antennal segment. Two orbital, 1 ocellar, 1 postocellar, 1 inner and 1 outer vertical setae well developed on each side of head.

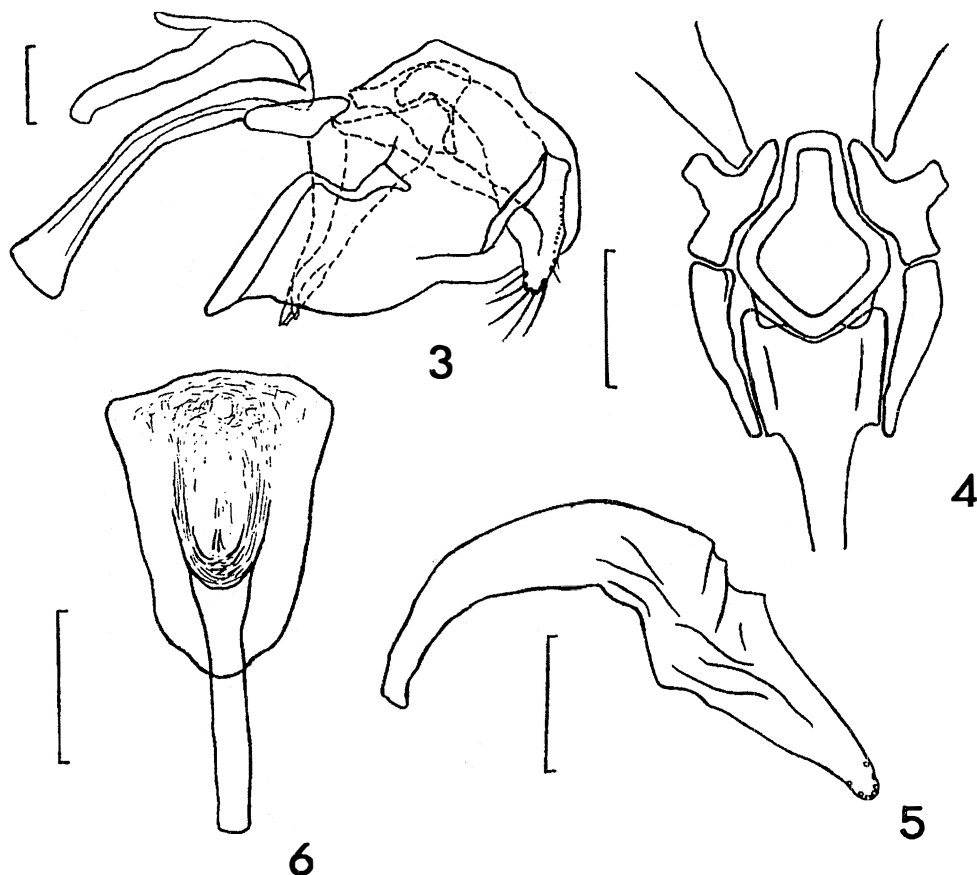
Thorax yellow; prescutum and scutum tawny, with 4 indistinct brownish stripes. Upper side of thorax subshining, whitish pruinose; pleura shining. Mesonotum with 1 humeral, 2 notopleural, 1 presutural, 1 supraalar, 2 postalar, and 2 dorsocentral setae on each side; prescutellar setae absent. Prosternum with 3 very small hairs. Mesosternum without hairs. Propleuron with strong seta and without hairs. Mesopleuron with several small hairs under anterior spiracle and with row of 2-4 small hairs along posterior margin. Pteropleuron with 2 setae and 3 hairs arranged in vertical row. Sterno-pleuron with numerous small hairs.

Wing slightly greyish brown infuscated, along crossveins *R-M* and *M-Cu* somewhat more darkened. Veins *C*, *Sc*, *R*₁, *R*₂₊₃ more or less yellowish; veins *R*₄₊₅, *M*, *Cu*, brown. Halteres yellow. Legs yellow. Fore tibia and tarsus, 4th segments of middle and hind tarsi, and apices of all femora yellowish brown. 5th segments of all tarsi dark brown. Fore femur darkened in nearly 1/7 of length before apex, while middle and hind femora darkened only at apex. Fore coxa with 2 long setae. Posterior and inner margins of hind coxa bare. Fore femur with 2 rows of 7-9 rather weak setae dorsally; middle femur with 2 setae on anterior surface in the middle; hind femur with 3 setae dorsally in posterior part. Fore and hind tibiae with only 1 preapical seta each, middle tibia with 2 preapical setae (all in dorsal position). In addition, before the apex, fore tibia with 2 ventral setae, hind tibia with 1 anteroventral seta, and middle tibia with ring of 10 setae of different size in all positions except dorsal.

Abdomen brownish yellow. Marginal setae distinctive on terga 3-5 laterally. Marginal setae of 5th tergum long, slightly shorter than 5th tergum.



Figs 1-2. *Sciomyza sebezica* sp. n., male, holotype. 1, andrium, ventral view; 2, andrium, lateral view.



Figs 3-6. *Sciomyza sebezihica* sp. n., male, holotype. 3, inner copulatory organ, lateral view; 4, base of aedeagal apodeme and pregonites, dorsal view, schematically; 5, left postgonite, posterodorsal view; 6, ejaculatory apodeme, dorsal view.

Male genitalia with well developed gonostyli (Figs 1, 2). Anterior part of gonostyli distinctly tapering to apex and covered with strong setae except for the posterior part of apex. Posterior part of gonostyli flattened, rounded posteriorly and with strong spine-like process anteriorly. Posterior part of gonostyli with 2 strong setae, several smaller hairs located mainly along posterior margin, and several minute hairs located around the centre of posterior part of gonostylus. Cerci fused, distinctly bifid apically, with short and obtuse projections. Hypandrium very broad. Aedeagus strongly widened to apex in ventral view. Aedeagal apodeme thick, distinctly curved and dilated apically (Fig. 3). Furca at base of aedeagal apodeme with distinct lateral angles (Fig. 4). Anterior parts of pregonites subtriangular in lateral view (Fig. 3) and narrow in dorsal view (Fig. 4). Postgonites (Fig. 5) comparatively broad, with beam

of nearly 8 long setae at apex. The longest of these setae much longer than half distance between the apices of postgonites (in ventral view, Fig. 1). Ejaculatory apodeme large, longer than half length of aedeagal apodeme, distinctly curved in lateral view (Fig. 3). Flat posterior part of ejaculatory apodeme large, scoop-shaped, its anterior and lateral margins less sclerotized (Fig. 6).

Length: body 4.2 mm, wing 3.9 mm. Female unknown.

Diagnosis. A small-sized species with tawny mesonotum, black 3rd antennal segment, mesopleura only with small hairs, fore and hind tibiae with only 1 preapical seta. The male terminalia distinctive.

Remarks on biology. The imago was reared after 2.5 month exposition of substratum in laboratory approximately at 20 °C, the following 1.5 month hibernation ca. at 10 °C, and 1

month exposition ca. at 20 °C. Probably, the thermoreactivation was necessary for the completion of development, as it was shown for *Sciomyza dryomyzina* Zett. by Knutson (1988). No other imagines of Sciomyzidae were collected at site 1 in 6 collections made with net and aspirator or reared from substrata in 3 series taken at this site from early May to September in 1997-1999, in contrast to several other sites of the lake, where both imagines and preimaginal stages of Sciomyzidae were common.

Discussion. The new species possesses typical appearance of the genus *Sciomyza* Fallén and all typical characters of this genus (haired prosternum, shining frons, longplumose arista, and finally, typical structure of male terminalia: both parts of male gonostyli connected along margin of perianthrium, cerci with tendency to fusion, each cercus apically bifid, typical shape of hypandrium, pre- and postgonites, aedeagal and ejaculatory apodeme) with the only exception. *S. sebezichica* sp. n. has one preapical seta on fore and hind tibiae, that is characteristic among Sciomyzini for *Pteromicroa*, *Ditaeniella* and *Pherbellia*, but does not correspond to the diagnosis of *Sciomyza* (Rozkošný, 1984, 1987, 1998; Vala, 1989). The keys to genera in these monographs used, the new species runs to *Pherbellia* Rob.-Desv. Formally, according to the external characters used in the key to the Palaearctic *Pherbellia* (Rozkošný, 1991), the new species is close to *P. dorsata*-group and *P. albocostata*.

I consider that the complex of characters each typical of *Sciomyza* (including the structure of genitalia), but not inherent in *Pherbellia*, allows me to place the new species in *Sciomyza*. Thus, *S. sebezichica* is the first species of the genus with one preapical seta on fore tibia, and two preapical setae in more or less dorsal position is not a universal generic character for *Sciomyza*.

Among Holarctic *Sciomyza*, the described species is very similar to *S. testacea* Macquart in most of the external characters. In the keys of Steyskal (1954) and Roller (1995), it runs to the couplet of *S. testacea*. In genitalia structure, *S. sebezichica* is similar to *S. testacea* in the shape of aedeagus and hypandrium and to *S. simplex* in the shape of the posterior part of gonostylus and the apical part of cercus. However, *S. sebezichica* is distinguished easily by the chaetotaxy of tibiae and by the structure of male terminalia, primarily by the shape of gonostylus. The comparison of the holotype with specimens of *S. simplex* Fallén, *S. dryomyzina* Zett. and *S. testacea* Macquart de-

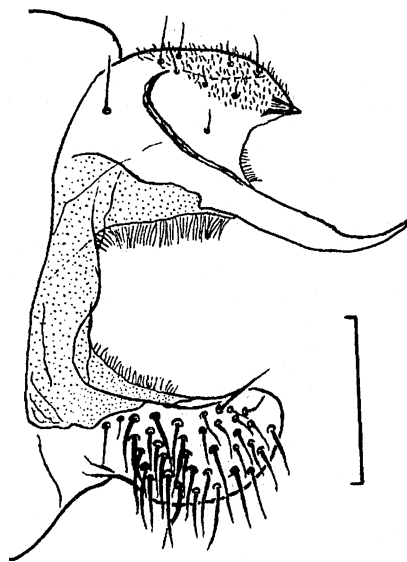


Fig. 7. *Sciomyza simplex* Fallén, male, left gonostylus, ventral view.

posited in the collection of Zoological Institute, as well as with 2 females of *S. testacea* reared from the Anninskoe Lake (see below), confirmed the distinctions.

In addition, it is to be mentioned that the specimens of *S. simplex* from four different localities of East Europe deposited in the Zoological Institute show the same differences from the figures of this species given by Rozkošný (1984) and Vala (1989) in the shape of the male gonostylus. In our material, the posterior part of gonostylus has very long pointed process curved backwards (Fig. 7), that is still different from that of *S. sebezichica* (Fig. 1). In other features of the male genitalia and in external characters, these specimens did not demonstrate any significant differences to the descriptions of *S. simplex*.

S. testacea Macquart, 1835. Anninskoe, Site 2: 1 ♀ reared 20.V.1998 from puparium collected 7.V.1998; Site 6: 1 ♀ reared 29.V.1998 from puparium collected 10.V.1998.

Colobaea pectoralis (Zetterstedt, 1847). Anninskoe, Site 2: 1 ♂ reared 20.V.1998 from puparium collected 7.V.1998 (puparium was in a shell of *Anisus vortex* (L.)).

C. aff. bifasciella (Fallén, 1820), *punctata* (Lundbeck, 1923). Anisimovo, Site 1: 1 puparium in a shell of *Lymnaea* sp.

Pherbellia argyra Verbeke, 1967. Anninskoe, Site 2: 1 ♀, 8.V.1998; Site 6: 1 ♂, 9.V.1998; Anisimovo, Site 1: 1 ♀, 12.V.1998.

Ph. griseola (Fallén, 1820). Anninskoe, Site 2: 1 ♂, 11.VII.1999; Site 6: 1 ♀ reared 29.V.1998 from puparium collected 9.V.1998 (puparium was in a shell of *Planorbis planorbis* (L.)); 1 ♂, 11.VII.1999.

Ph. obtusa (Fallén, 1820). Anninskoe, Site 2: 1 ♂, 8.V.1998; 1 ♂, 11.VII.1999.

Ph. schoenherri (Fallén, 1826). Anninskoe, Site 2: 1 ♀, 8.V.1998; 1 ♀, 11.VII.1999.

Ph. stackelbergi Elberg, 1965. Anninskoe, Site 6: 1 ♂ and 1 ♀, 11.VII.1999.

Pteromicra angustipennis (Staeger, 1845). Anninskoe, Site 2: 1 ♀ reared 3.VI.1998 from puparium collected 15.V.1998; Site 6: 1 ♀ reared approximately 22.VI.1998 from puparium collected 4.VI.1998.

P. glabricula (Fallén, 1820). Anninskoe, Site 2: 1 ♀ reared 27.V.1998 from puparium collected 7.V.1998; 1 ♀, 11.VII.1999; Anisimovo, Site 1: 1 ♂ reared 30.V.1998 from puparium collected 12.V.1998; Site 4: 1 ♀ reared 30.V.1998 from puparium collected 12.V.1998.

P. leucopeza (Meigen, 1838). Anninskoe, Site 2: 1 ♂ reared 20.V.1998 from puparium collected 7.V.1998; 1 ♂ reared 15.VI.1998 from puparium collected 15.V.1998.

Tribe TETANOCERINI sensu Steyskal, 1965

Antichaeta analis (Meigen, 1830). Anninskoe, Site 2: 1 ♂, 11.VII.1999.

A. brevipennis (Zetterstedt, 1846). Anninskoe, Site 6: 1 ♂ reared 15.VI.1998 from puparium collected 1.VI.1998.

Elgiva cucularia (Linnaeus, 1767). Anninskoe, Site 6: 1 ♂ reared 15.V.1998 from puparium collected 10.V.1998; Anisimovo, Site 1: 1 ♀, 12.V.1998.

E. sollicita (Harris, 1780). Anninskoe, Site 6: 1 ♀ reared 15.VI.1998 from puparium collected 1.VI.1998.

Ilione aff. **lineata** (Fallén, 1820). Anninskoe, Site 2: 1 puparium, 7.V.1998; Site 6: 1 larva, 9.V.1998.

Psacadina aff. **verbekei** Rozkošný in Knutson, Rozkošný & Berg, 1975. Anninskoe, Site 2: 1 puparium, 10.IX.1997.

Sepedon sphegea (Fabricius, 1775). Anninskoe, Site 2: 1 ♂, 11.VII.1999; Anisimovo, Site 1: 1 ♀, 12.V.1998; 1 ♂, 11.VII.1999; Site 4: 1 ♀, 12.V.1998.

S. spinipes (Scopoli, 1763). Anninskoe, Site 2: 5 ♂ and 2 ♀, 8.V.1998; 2 ♀, 11.VII.1999; Site 6: 1 ♂, 11.VII.1999; Anisimovo, Site 1: 1 ♀, 12.V.1998.

Tetanocera aff. **arrogans** Meigen, 1830. Anninskoe, littoral zone of Site 6: 1 empty puparium, 30.IX.1997.

Tetanocera ferruginea Fallén, 1820. Anninskoe, Site 6: 1 ♀, 11.VII.1999.

Acknowledgements

I am very grateful to Prof. E.P. Nartshuk (St.Petersburg) for consultations and help in preparation of this paper. The work was partially supported by the Russian Foundation for Basic Research, grant No. 00-15-97825, and was carried out using scientific collections of the Zoological Institute, Russian Academy of Sciences, which obtain financial support from the Science and Technology Ministry of the Russian Federation (Reg. No. 00-03-16).

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Received 16 November 2000.